

5. (twice amended) The diffusion barrier coating of claim 48, wherein the level of tungsten is in the range of about 10 atom % to about 20 atom %.

B3

6. (amended) The diffusion barrier coating of claim 5, wherein the level of tungsten is in the range of about 10 atom % to about 15 atom %, and the level of chromium is in the range of about 15 atom % to about 90 atom %.

48. (amended) A diffusion barrier coating, comprising:

(a) about 15 atom % to about 95 atom % chromium;
and

B4 (b) about 10 atom % to about 60 atom % tungsten.

49. (amended) A barrier coating material, comprising:

(a) about 15 atom % to about 95 atom % chromium;
(b) about 10 atom % to about 60 atom % ruthenium;
and
(c) about 1 atom % to about 15 atom % aluminum;

wherein, for the maximum level of chromium present, the sum of (a), (b), and (c) is no greater than 100%.

50. (amended) A diffusion barrier coating, consisting essentially of:

(a) about 15 atom % to about 95 atom % chromium;

and

(b) about 5 atom % to about 60 atom % of at least one element selected from the group consisting of rhenium, tungsten, ruthenium, and combinations thereof.

51. (amended) A diffusion barrier coating, consisting essentially of:

(a) about 15 atom % to about 95 atom % chromium;

(b) at least one element selected from the group consisting of rhenium, tungsten, ruthenium, and combinations thereof; wherein for each element which may be present:

B4
atom % to about 60 atom %;

the level of rhenium is from about 15

% to about 60 atom %; and

the level of tungsten is from about 10 atom

% to about 60 atom %; and

the level of ruthenium is from about 5 atom

% to about 60 atom %; and

(c) about 1 atom % to about 35 atom % of at least one element selected from the group consisting of nickel, cobalt, iron, and combinations thereof,

wherein, for the maximum level of chromium present, the sum of (a), (b), and (c) is no greater than 100%.

52. (amended) A barrier coating material, consisting essentially of:

(a) about 15 atom % to about 95 atom % chromium;

(b) at least one element selected from the group consisting of rhenium, tungsten, ruthenium, and combinations thereof; wherein for each element which may be present:

the level of rhenium is from about 15 atom % to about 60 atom %;

the level of tungsten is from about 10 atom % to about 60 atom %; and

the level of ruthenium is from about 5 atom % to about 60 atom %;

(c) about 1 atom % to about 35 atom % of at least one element selected from the group consisting of nickel, cobalt, iron, and combinations thereof; and

(d) about 0.1 atom % to about 5 atom % of at least one element selected from the group consisting of zirconium, titanium, hafnium, silicon, boron, carbon, tantalum, molybdenum, and yttrium,

wherein, for the maximum level of chromium present, the sum of (a), (b), (c), and (d) is no greater than 100%.

Please add the following new claims:

New Claim 53. The barrier coating material of claim 3, further comprising about 1 atom % to about 35 atom % of at least one element selected from the group consisting of nickel, cobalt, iron, and combinations thereof.